UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
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ART UNIT	PAPER NUMBER
2617	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

		Application No.	Applicant(s)
Office Action Summary		10/534,380	KROTH ET AL.
		Examiner	Art Unit	
		MICHAEL T. VU	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

> A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS,
> WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
> - Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
>   after SIX (6) MONTHS from the mailing date of this communication.
> - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
> - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
>   Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
>   earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *15 September 2008*.

2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *17-36* is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *17-20 and 26-36* is/are rejected.

7) ☒ Claim(s) *21-25* is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a) ☐ All b) ☐ Some * c) ☐ None of:

         1. ☐ Certified copies of the priority documents have been received.

         2. ☐ Certified copies of the priority documents have been received in Application No. _____.

         3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1.   Applicant's Remarks/Arguments filed September 15, 2008, have been fully

considered but they are not persuasive.

2.   On page 7 of Applicant's Remarks, that Agarwal does not teach or suggest

"determining a random delay time for user equipment to transmit a signal on an uplink

access channel based upon a probability distribution that increase in density with

increasing delay", lines 30-32.

        In response, Agarwal indeed clearly discloses a method for controlling random

access channel congestion that result from **a large number of mobile devices/phones**

transmitting, in which the transmissions is controlled by the wireless communication

system using random access channel restrictions and random access techniques.

Specifically, the random access channel restrictions reduce collisions among

acknowledging mobile between the wireless communication systems and mobile

terminal (see Col. 2, lines 7-23), e.g. downlink or uplink access between the base

station and mobile device, e.g. a wireless communication system transmits (via one or

more base stations) to every mobile-telephone within its coverage area). The control

channels typically include at least one reverse channel and one forward channel. The

reverse channels and forward channels include a set of reverse sub-channels and

forward sub-channels, respectively. The wireless communication systems use the

forward sub-channels to transmit short messages, paging messages, etc. to the mobile

device. And further Agarwal discloses response messages acknowledgments to short

messages, etc. to the wireless communication systems, in which the reverse sub-

channels are also referred to as Random Access Channels (RACH), (see Col. 1, lines

11-30).

Furthermore, Agarwal explicitly teaches the mobile-telephone checks to

determine whether they have equal or exceeded a maximum number of allowable re-

tries, i.e., attempts to successfully transmit the BSM acknowledgment (Col. 6, lines 61-

64).

3.   On page 8 of Applicant's Remarks, that Agarwal neither teaches, discloses, nor

suggests "using the time variable information to determine delay times for transmitting

signals on an uplink access channel from the user equipment, the time variable

information varying based upon a probability distribution which increases in density with

increasing time.", lines 24-27.

In response, Agarwal clearly discloses the random access techniques **for

reducing collisions** among the transmission over the **period of time and/or within

time interval for controlling random access channel congestion** (Col. 2, lines 48-

50)

Moreover, Agarwal specifically discloses a time delay parameter, and a random number generator to **determine the duration of a random delay period**. Upon the end of the random delay period (Col. 2, lines 29-31).

Addition, Agarwal explicitly teaches the wireless communication systems has a communication forward and reverse channels that has a time slot, and an interval of time (Col. 3, lines 13-16).

Furthermore, Agarwal discloses if a large number of mobile-telephones attempt to acknowledge, i.e., transmit BSM acknowledgments, at the same time, two types of collisions are likely to occur.

1) The first type of collision is among acknowledging mobile-telephones, i.e., mobile-telephones attempting to send a BMS acknowledgment.

2) The second type of collision is between the acknowledging mobile-telephones and mobile-telephones transmitting call processing related messages (e.g., mobile-telephones originating calls, responding to pages, etc.). In other words, the RACH may become congested as a result of numerous mobile-telephones attempting to transmit on the RACH at the same time. Such congestion prevents call processing messages and BMS acknowledgments from being successfully received by the wireless communication system (Col. 4, lines 48-63).

4.   On page 9 of Applicant's Remarks, that Agarwal neither teaches, discloses, nor

suggests "a transmitter to transmit a time variable information in downlink to user

equipment located in an area covered by the base station", lines 8-10.

        In response, Agarwal clearly teaches the random access channel restrictions

reduce collisions among acknowledging mobile between the wireless communication

systems and mobile terminal (Col. 2, lines 7-23), e.g. downlink or uplink access

between the base station and mobile device, e.g. a wireless communication system

transmits (via one or more base stations) to every mobile-telephone within its coverage

area). The control channels typically include at least one reverse channel and one

forward channel. The reverse channels and forward channels include a set of reverse

sub-channels and forward sub-channels, respectively. The wireless communication

systems use the forward sub-channels to transmit short messages, paging messages,

etc. to the mobile device. And further discloses response messages),

acknowledgments to short messages, etc. to the wireless communication systems, in

which the reverse sub-channels are also referred to as Random Access Channels

(RACH), Col. 1, lines 11-30).

        Moreover, Agarwal explicitly teaches the mobile-telephone checks to determine

whether they have equal or exceeded a maximum number of allowable re-tries, i.e.,

attempts to successfully transmit the BSM acknowledgment (Col. 6, lines 61-64).

5.   On page 9 of Applicant's Remarks, that Agarwal neither teaches, discloses, nor

suggests "comprising a calculation unit to determine a delay time for transmitting a

signal on an uplink access channel", lines 22-23.

        In response, Agarwal clearly teaches a method for controlling random access

channel congestion that result from a large number of mobile-telephones transmitting

acknowledgments to broadcast short messages. In this embodiment, BSM

acknowledgment transmissions on the random access channel are controlled by the

wireless communication system using random access channel restrictions and random

access techniques, random access channel restrictions are used to reduce collisions

among acknowledging mobile-telephones and call processing mobile-telephones by

limiting the BSM acknowledgment transmissions to particular random access channel.

Random access techniques are used to reduce collisions among acknowledging

mobile-telephones by distributing the BSM acknowledgment transmissions over time

(Col. 2, lines 7-23).

        Furthermore, Agarwal clearly teaches the time delay parameter is used by the

mobile devices in conjunction with the output of a random number generator to

determine the duration of a random delay period. Upon the end of the random delay

period, each of the mobile devices will attempt to transmit an acknowledgment the

broadcast short message using the random access channel (Col. 2, lines 24-35).

In view of the above the rejections using Agarwal is maintained. This rejection is made FINAL.

Claim Rejections - 35 USC § 102

6.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7.   Claims 17-20, 26-29, 33-36 are rejected under 35 U.S.C. 102(b) as being anticipated by Agarwal (US 6,075,779).

Regarding claim 17, Agarwal teaches a method for controlling uplink access transmissions in a radio communication system (Abstract), comprising: determining a random delay time for user equipment to transmit a signal on an uplink access channel based upon a probability distribution that increases in density with increasing delay (Col. 2, lines 7-35), the random delay time being determined by the user equipment (Col. 5, lines 30-33, also see Col. 6, lines 57 to Col. 7, line 8).

Regarding claim 18, Agarwal teaches the method according to claim 17, wherein the delay time is determined upon receipt of a request for uplink access transmissions from a base station (Col. 5, lines 4-5).

Regarding claim 19, Agarwal teaches the method according to claim 18, wherein the base station transmits the request on a paging channel or on a control channel (Col. 2, lines 56-67).

Regarding claim 20, Agarwal teaches the method according to claim 17,wherein the signal for which the delay time is determined is a response signal transmitted by the user equipment on a contention based common uplink access channel (Col. Lines 23-35, Col. 5, lines 30-33, also see Col. 6, lines 57 to Col. 7, line 8)

Regarding claim 26, Agarwal teaches the method according to claim 17, wherein a base station associated with a communication network issues a request (Col5, lines 1-29), after the delay time, the user equipment performs an uplink access transmission as a response to the request (Col. 2, lines 7-35, also see Col. 4 to Col. 4, line 40), the network determines if the number of user equipments responding to the request exceeds a predetermined threshold (time interval/exceeded a maximum, Col. 6, lines 7-67), and the network signals to the user equipments to terminate further uplink access transmissions if the threshold is exceeded (Col. 6, lines 7-67 to Col. 7, line 8).

Regarding claim 27, Agarwal teaches the method according to claim 26, wherein to signal the user equipments to terminate further uplink transmissions (Col. 6, lines 1-56), the network transmits a dedicated termination signal to the user equipments, or signals an allocation of resources that implicitly indicates termination is required (Col. 6, lines 7-67 to Col. 7, line 8).

Regarding claim 28, Agarwal teaches the method according to claim 26, wherein dependent on the number of user equipments responding to the request, the

network either assigns common resources for at least a plurality of the user equipments
or assigns individual resources for each user equipment (Col. 6, lines 7-67 to Col. 7, line
8).

Regarding claim 29, Agarwal teaches the method according to claim 19,
wherein the signal for which the delay time is determined is a response signal
transmitted by the user equipment on a contention based common uplink access
channel (Col. 2, lines 7-35).

Regarding claim 33, Agarwal teaches a method for controlling uplink access
transmissions in a radio communication system (Abstract), comprising: using downlink
signalling from a base station of the radio communication system to transmit time
variable information to user equipments located in an area covered by the base station
(Col. 1-28, Col. 4, lines 37-63), using the time variable information to determine delay
times for transmitting signals on an uplink access channel from the user equipments
(Col. 5, lines 1-28), the time variable information varying based upon a probability
distribution which increases in density with increasing time (Col. 2, lines 7-35, by
distributing the BSM acknowledgment transmissions over time, and interval of time, see
Col. 3, lines 2-25).

Regarding claim 34, Agarwal teaches the method according to claim 33,
wherein the user equipments each perform a comparison of a randomly determined
number with the time variable information (Col. 6, lines 1-56), and based on the result of
the comparison (Col. 2, lines 7-35, Col. 4, lines 37-67), each user equipment controls
the transmission of said signals on the uplink access channel (Col. 4, lines 37-67).

     Regarding claim 35, Agarwal teaches a base station of a radio communication system (Col. 5, lines 1-28), comprising: a transmitter to transmit a time variable information in downlink to user equipments located in an area covered by the base station (Col. 4, lines 37-63), wherein the information is used in the user equipments to determine delay times for transmitting signals on an uplink access channel and wherein the information varies based upon a probability distribution which increases in density with increasing time (Col. 2, lines 7-35, by distributing the BSM acknowledgment transmissions over time, and interval of time, see Col. 3, lines 2-25); and a receiver to receive the signals transmitted by the user equipments on the uplink access channel (Col. 5, lines 28-57, Col. 6, lines 7-56, see forward and reverse channels).

     Regarding claim 36, Agarwal teaches a user equipment of a radio communication system (Mobile Phone, Col. 2, lines 7-35), comprising a calculation unit to determine a delay time for transmitting a signal on an uplink access channel (Col. 2, lines 7-35, Col. 4, lines 37-63, Col. 5, lines 29-40, and also see Col. Col. 6, lines 57-67), wherein the delay time is randomly determined based upon a probability distribution that increases in density with increasing delay (Col. 2, lines 7-35, by distributing the BSM acknowledgment transmissions over time, and interval of time, see Col. 3, lines 2-25).

Allowable Subject Matter

8.   Claims 21-25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

For claim 21, the method according to claim 17, wherein the probability distribution is determined according to: $p(t) = x.eXt/(eXT-1)$ for $t \sim [O,T]$ wherein $p(t)$ denotes a probability that a delay time t is selected, T denotes a predetermined maximum delay time, and x is a parameter that controls a rate of change of probability with time.

For claim 22, the method according to 17, wherein the probability distribution is determined according to: $p(j) = qn-J o(1-q)/(1-qn)$ for $I e [0,n]$ wherein n is the number of sub-intervals in a predetermined time interval T, P(j) denotes a probability that sub-interval j is selected, and q is a parameter that controls a rate of change of probability within a sub-interval.

For claim 23, the method according to claim 17, wherein the probability distribution is determined according to: $P(j) = (qn-j -qn)/(1-qn)$ for $j e[1,n]$ wherein n is the number of sub-intervals in a predetermined time interval T; P(j) denotes a probability that sub-interval j is selected, and q is a parameter that controls a rate of change of probability within a sub-interval.

For claim 24, the method according to claim 21, wherein T and x are signaled to the user equipment.

For claim 25, the method according to claim 24, wherein T and x are transmitted together with a request for the delay time from the base station.

(Please see the original equations in the claims 21-25)

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Vu whose telephone number is (571) 272-8131. The examiner can normally be reached on 8:00am - 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles N. Appiah can be reached on 571-272-7904. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael Vu/
Examiner
AU-2617

/Charles N. Appiah/
Supervisory Patent Examiner, Art Unit 2617